Vulnerability, Compensation, and Support for Climate Policies

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Abstract

Combating climate change requires large economic adjustments that will have significant distributional implications for countries around the world. Scholars and policymakers have increasingly proposed compensation policies to ease the costs of the “carbon transition” for vulnerable communities and create momentum for climate policy cooperation. However, to date, little work exists to explicate the determinants of individual support for compensatory climate policy and particular modes of compensation over others. We argue that the uneven distribution of vulnerabilities to climate change events and economic adjustment to decarbonization generates distinct positions on compensatory climate policy designs. Employing new data from several original surveys in the US, we show that communities that are only exposed to the economic costs of implementing climate policy (namely, coal country communities) have more cohesive opinions in favor of compensation for workers vulnerable to decarbonization efforts than fossil fuel communities that are also exposed to climatic events. Both groups stand in contrast to the general population, which cares less about losing workers and more about alternate types of large-scale compensation. Importantly, we find that the strong opinions about compensation in the coal communities are closely connected to fears that climate policy may threaten their collective identity. Although greater recognition of climate policy compensation may improve governments’ responses to the climate crisis, our findings also point to the likely polarization that compensatory options can generate in relevant political constituencies.

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“Decarbonization” represents one of the most pressing and multifaceted challenges facing governments of our day. It requires coordination and cooperation across countries seeking to reach effective deals at the international level (Bechtel and Scheve 2013). At the same time, it necessitates convincing domestic audiences to support a bundle of policies—implemented by national legislatures and policymaking bodies—that will facilitate meaningful reductions in emissions. Because these policies entail significant distributional implications, they are poised to generate vigorous opposition from adversely affected communities (Jenkins 2019). Governments can employ compensatory policies to alleviate the “carbon transition” costs for vulnerable communities and create momentum for climate policy cooperation. This paper sets out to explicate the sources of support for different compensatory climate policies and modes of compensation. We theorize how politically relevant groups prefer spending revenue from carbon taxes and test these propositions using surveys in which individuals allocate spending across various categories of compensatory mechanisms.

Our empirical approach focuses attention on critical communities that lie at the center of climate policy decisions, yet that remain understudied in existing work. We begin by identifying individuals and communities that stand to be most immediately impacted by decarbonization policies, such as coal workers or those employed in the oil and gas industry, as critically important political constituencies with preferences for compensatory policies. Next, we consider communities residing in local economies that are highly reliant on fossil fuels, but that also face nearer term costs due to physical stresses emerging from climate change, as potential counterweights to the earlier group. We benchmark the preferences of these two theoretically relevant groups with the preferences of the national electorate. To understand how these different communities develop preferences regarding decarbonization policies, we fielded a common survey instrument to communities in “coal country”, communities in coastal regions high in fossil fuel employment, and a representative national sample of American voters.

By examining how to spend proceeds from imposing a cost on carbon emissions, we put the lens squarely on the distributional politics of climate policy (Keohane and Victor 2016, Aklin and Mildenberger 2018, Colgan, Green and Hale 2018, Berquist, Mildenerger, and Stokes 2019). We focus on preferences over the shape of decarbonization policies within a country that will generate costs for citizens. Revenue raised from a decarbonization policy can be spent in a variety of ways. For example, a ‘carbon tax’ could be evenly re-distributed to all taxpayers, as recently suggested by a group of economists (Climate Leadership Council 2019), or it could also be used to compensate individuals who are likely to lose their jobs due to employment in carbon

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2 In this study, we bracket consideration of how governments can choose to impose direct or indirect carbon taxes that incentive decarbonization among citizens and firms in the domestic economy, focusing instead on examining the possible channels by which governments can use the proceeds from such revenue raising schemes to compensate vulnerable communities.
intensive industries. It also might be spent on other ends such as investments in green technologies.

We focus on preferences held by individual citizens, for which there exist a range of studies explicating the determinants of sympathy for, or opposition toward, climate action (e.g., Aldy et al 2012, Bechtel and Scheve 2013, Carlsson et al. 2011, Stokes 2013, Tingley and Tomz 2014, Cooper et al 2018, Tingley and Tomz 2020). This literature, though, lacks theory and evidence to clarify how individuals develop preferences regarding compensation in climate politics, and more generally about the shape of preferences for decarbonization policies that must be enacted at the domestic level and will have distributional consequences.

In the climate policy context this is an oversight. Compensation in political economy research is still largely understood in the context of individual attitudes towards taxation, economic inequality, and trade adjustment (e.g. Margalit 2011, Autor et al 2014); to date, little is known on individuals’ motivation to embrace climate action when redress is available to those who might be harmed by a policy. Given the key role that compensation plays in legislative action on environmental regulation (Hatch 1995, Kono 2019) as well as normative debates regarding climate cooperation (Evans and Phelan 2016), elucidating how compensatory mechanisms can shift public opposition into support for climate action is a matter of pressing scholarly and public policy concern.

The goal of this paper is to provide a theoretical framework and rigorous empirical tests to explain the determinants of individual preferences for compensation related to climate change policymaking. To the extent that the policy buy-in of “climate losers” can be achieved with various mechanisms, including compensation, we set out to answer the following questions: What types of compensation mechanisms are more favorable among different politically relevant voter groups? How do individuals with varying degrees of climate sensitivity develop preferences pertaining to climate policy compensation? Do different modes of deployment of compensation activate policy support? By addressing these questions, this paper not only explores the types of compensatory policy options that likely increase support for climate action among coalitions of voters, but also investigates the impact of vulnerability at the individual and group level on support for different types of decarbonization policies.

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3 Considering compensation to workers is not an abstract possibility. In 2017, we fielded a nationally representative survey via the AmericasBarometer project where we asked respondents the following question “Congress could consider many important bills in the next two years. If you were in Congress would you vote FOR or AGAINST the following? Climate Adjustment Assistance: Provides education assistance and retraining to workers who have lost their jobs as a result of [policies designed to reduce | reductions in] greenhouse gas emissions.” The text in brackets was randomly assigned but did not significantly affect answers. Respondents answer either they were for or against the policy. There was bipartisan support for the proposal in both of the treatment conditions (62% Republican, 70% Independent, 85% Democrat). We observed similar bipartisan support in nationally representative survey fielded in 2016 as part of the Cooperative Congressional Election Study (65% Republican support, 78% Independent support, 94% Democratic support).
Our theoretical argument regarding the determinants of attitudes toward compensation starts from the assumption that individuals may be more or less exposed to the costs of addressing climate change. While these costs are disparate, in this paper we focus on one cost dimension that we believe is central to understanding mass politics over climate compensation: the employment and wage related costs that are associated with decarbonization policies and that generate vulnerability among societal groups poised to lose materially from climate policy action (Kolstad 2014, Bechtel et al. 2019). These costs will be borne disproportionately by workers in carbon-heavy economic sectors—specifically, the coal, oil and gas, and other fossil fuel producing industries. We then consider how individuals who are susceptible to employment-related costs associated with carbon policies might develop distinct preferences when they also face ecological costs associated with climate change (Brody et al. 2007, Egan and Mullin 2012). Residents in coastal communities or regions susceptible to climate-related disturbances are expected to be particularly sensitive to the impact of climate change due to the ecological vulnerability that they face, and may thus view compensation distinctly compared to individuals in regions that are relatively unaffected by climate change. We argue that the levels and mix of these costs underline individuals’ propensity to accept one type of climate policy compensation over others and one method of deployment of compensation over others.

We test our theoretical predictions with a nationally-representative survey of voters in the United States, along with two surveys of targeted communities of Americans residing in fossil fuel producing regions of the country that are either coastal (i.e., more ecologically vulnerable) or non-coastal (less ecologically vulnerable) in nature.

Our general population survey reveals that voters on average focus more on investments in green technologies (when the household carbon tax is low) and equal distributions of funds raised from carbon taxes (when the taxation level is high). By contrast, people exposed to fossil fuel (un)employment who reside in regions that are less ecologically vulnerable prefer policies that focus resources on direct compensatory transfers to individuals working in coal and oil industries. These groups of voters have little appetite for investments in green technologies or egalitarian payouts of carbon tax funds to citizens. However, whether people in fossil fuel producing regions are willing to sacrifice direct transfers for larger-scale, more diffused compensatory climate policies is a function of their ecological vulnerability to climate change. Notably, we find that “cross-pressured” individuals—i.e., people attached to the fossil fuel industry who also live in coastal areas—prefer the most mixed distributions of monetary allocations to compensatory mechanisms. This includes support for climate adaptation spending. Our evidence therefore indicates that the preferences of individuals vulnerable to climate change policy are distinct compared to the preferences of the average voter, with cross-pressured individuals falling in between these two attitudinal poles.
Having considered the determinants of mass preferences over climate policy compensatory instruments, we proceed to examine if preferences vary as a function of the relative importance that groups of voters attach to individual versus collective goals. Community and identity-related beliefs play a key role in climate politics discourse (Bliuc et al. 2015, Mildenberger and Tingley 2018) and decisions to mobilize politically at either the individual, regional, or national levels are important determinants of public policy positions (Shayo 2009, Hopkins 2010). We draw on theories of social identity and community oriented motivations to better understand the determinants of preference formation on climate action policies. Specifically, we predict that different types of (economic and ecological) vulnerabilities should generate distinct feelings of community attachments that, in turn, can help explain why some individuals prefer more concentrated forms of compensation while others favor compensatory resources that are more communally deployed.

Our identity-related analyses buttress the finding that individuals in regions that are predominantly sensitive to the employment repercussions of climate policy have the most distinctive opinions about the deployment of compensation. Specifically, we find that Americans in employment-vulnerable regions prefer more community-oriented compensatory transfers relative to compensation to individual households, and subscribe closely to notions of community identity associated with coal employment. By contrast, individuals in the general population pay considerably less attention to issues of community: they are less favorable of community-level compensatory mechanisms, less concerned about the impact of decarbonization on group identities in coal producing regions, and less cognizant of national identities and more supportive of cost efficiencies when considering cross-border compensatory transfers. Respondents in the cross-pressured group fall in between these two groups, privileging a mix of individual and community level resource deployment, exhibiting some concern for policies that would harm the identities of fossil fuel producing communities, and balancing considerations of nationalism and cost efficiency when considering cross-border compensatory schemes.

Taken together, our findings contribute to scholarly conversations regarding the role of egocentric and sociotropic motivations in driving support for climate policies in emissions-rich electoral democracies (Bechtel, Bernauer and Mayer 2012; Bechtel and Scheve 2014). They also have implications for the implementation of effective carbon policies in large heterogeneous countries. As Jenkins (2019) argues, “attention to the distributional impacts and political economy of various policy choices can provide important insights about the likely sources and strength of support and opposition that these policies will receive from various constituencies.” Our results, in turn, elucidate how individuals belonging to communities that are vulnerable to the costs of regulatory policies aimed at emissions mitigation and to the costs of climate change itself develop preferences regarding compensatory climate policies that are systematically different from those of the average voter.
Climate Policy Losers and Differential Preferences for Compensation

Compensation is a mechanism for redistributing resources to the more sensitive losing parties of a redistributive economic policy. As a burden-sharing tool, its distinctiveness stems from its focus on reallocating resources to specific groups in order to redress past or future costs. Because of its targeted nature, compensation can have important feedback effects on support for public policy, for it can foster governments’ credibility in seeking to protect vulnerable individuals and communities (Autor et al 2014). At the same time, compensation may fail to achieve policy goals if it is not well calibrated or judiciously implemented (Carattini, Kallbekken and Orlov 2019, Jenkins 2019). How the public views compensation is therefore critical for successful policy enforcement and compliance. Importantly, support for compensatory policies likely depends both on the type and degree of vulnerability experienced by targeted groups and how this is perceived both by affected communities and by the rest of society.

In this section, we delineate how different forms of climate-related vulnerability can affect preferences for compensatory climate policy. The issue area of climate change is instructive because the politics of climate change mitigation and adaptation are deeply rooted in distributive conflicts, and “climate losers” constitute a compelling group that can lay stake to beneficial policy support (Bechtel and Scheve 2013, Anderson, Bernauer and Bajari 2017). We note, however, that the core theoretical tradeoffs we identify in the climate arena potentially apply to other redistributive international economic policy domains where coalitions of voters demand compensation as a form of economic redress.

In order to establish what compensation in climate politics may look like, we begin by identifying the groups that are likely to claim entitlement to compensation related to climate change, and develop predictions related to their preferred compensatory mechanisms. On the one hand, climate change necessitates expensive adaptation for communities whose livelihoods are most exposed to events such as floods, hurricanes and wildfires. Adaptation-related costs could be addressed by protective infrastructural investments—for example, seawalls in low-lying coastal communities—made by governments to protect ecologically vulnerable communities from the adverse effects of climate change (Barbier 2014). On the other hand, climate change action implies costly mitigation, which bears on regions in which socio-economic activities contribute disproportionately to greenhouse gases, such as fossil fuel producing localities. Given the direct impact of decarbonization on job losses and household incomes in coal and other fossil fuel generating industries, governments may choose to address mitigation-related costs by providing direct fiscal transfers to affected workers and their families (Rentier et al 2018).

Evidently, other instruments exist apart from these two compensatory options. Investments in clean energy and green technologies may be a useful redistributive mechanism if these are conceptualized as long-term conduits for decarbonization, aiming to reduce emissions in a
diffuse fashion while holding the potential of generating jobs and economic gains for broader societal coalitions in the future. In a similar vein, other compensatory mechanisms such as tax rebates for all citizens who directly or indirectly contribute to carbon taxes targeting mitigation may also be considered equitable and credible instruments of redress that immediately benefit large sections of society (Jagers, Martinsson and Matti 2019).

We contend that support for these different forms of compensation is linked to individuals’ perceptions of climate change vulnerability. Here we investigate two dimensions of vulnerability and, therefore, two different sources of individuals’ preferences related to the compensatory mechanisms envisioned above. On the one hand, we concentrate on employment-related vulnerability to carbon policy, which researchers have increasingly highlighted as a catalyst of public opposition to climate cooperation (Bechtel, Genovese and Scheve 2019, Carley et al. 2018a, Kono 2019, Beiser-McGrath and Bernauer forthcoming, Berquist, Mildenberger, Stokes 2019). On the other hand, we consider ecological vulnerability, which the scholarship on public behavior has underlined as an important source of political activism (Egan and Mullin 2012, Healy and Malhotra 2009, Bechtel and Hainmueller 2011).

The premise of our theoretical framework is that individuals can perceive vulnerability concerns associated with climate change either independently or simultaneously (cf. Sprinz and Vahtoranta 1994). We begin by considering how individuals can be negatively affected by decarbonization policies, for example if they live in areas where fossil fuels are extracted and refined. Individuals affiliated with the fossil fuel industry are those who are either directly employed in jobs that contribute to fossil fuel production or those who are dependent on its associated economies, such as service sector employment in fossil fuel producing regions. We then evaluate how individuals living in communities exposed to climate policy risk might or might not also be affected by ecological fragility associated with climate change—for instance, if they live in coastal regions or drought prone lands that are vulnerable to the adverse climatic events. This classification generates two categories of individuals: 1) those who are carbon policy vulnerable but not ecologically threatened, and 2) those who are both carbon policy vulnerable and ecologically threatened. We benchmark the policy preferences of both of these groups of individuals to those who are neither ecologically threatened nor carbon policy vulnerable, i.e., the general public.

*Policy threatened, ecologically not threatened*

What are the determinants of preferences among these three groups of voters regarding compensatory climate policies? First, we consider individuals who are exposed to the cost of carbon policy but who do not face clear and immediate ecological threats from climate change. This group includes people exclusively pressured by the anxiety of losing jobs or wages were the government to pass stringent climate action legislation. In line with research that identifies a
The powerful effect of employment-based concerns in climate politics (Bechtel, Genovese and Scheve 2019), we predict that these people should be most supportive of compensatory payments that deal directly with their individual-level employment concerns. Consequently, we expect these individuals to support policies that emphasize more prominently direct fiscal transfers to affected households rather than other investments (such as, for example, investments in adaptation infrastructure, green technologies, or tax rebates).

Policy threatened, ecologically threatened

We next consider individuals who are exposed to the costs of carbon policy but who also face clear and immediate ecological threats from climate change. We classify this group as “cross-pressured” (Sprinz and Vaahtoranta 1994). Cross-pressured individuals may be pushed to support, on the one hand, direct individual transfers and, on the other hand, more collective forms of protection (e.g. infrastructural investments), since each compensatory instrument alleviates a distinct category of vulnerability. Hence, we expect those exposed to high costs on both dimensions to express more support for policies that entail a mix of direct individual-level compensatory payments to offset the costs of climate mitigation policy, as well as infrastructural action designed to offset community-level environmental costs of climate change. Were they to choose the amounts in which to allocate compensation, we expect that selected choices would be more evenly distributed than, for example, the selections of individuals only pressured by employment concerns. We predict that individuals with cross-pressured interests would also be affected by the level of allocation of compensatory resources.

Neither ecologically threatened, nor policy threatened

Finally, we consider individuals who are pressed neither by climate change vulnerability nor employment-based concerns related to carbon policy—in other words, the general public. We expect these individuals to exhibit the lowest level of salience related to multidimensional issues of climate change. Consequently, we expect these individuals to be less supportive of climate-related compensation in aggregate, and less enthusiastic about infrastructural investments and fiscal transfers to groups affected by climate change policies. If given the opportunity to divert compensatory resources to other funding programs or an equal redistribution of public funds to citizens (e.g. a carbon tax rebate), we expect these individuals to be the most supportive of the latter type of compensatory mechanisms. Note that among individuals who are not exposed to the costs of carbon policy, some may be concerned about bearing the costs from future, loosely targeted climate change events (and not from eventual job losses or wage decreases caused by climate policy). Hence, these individuals may display more favorability to more spatially “diffused” forms of compensation, which have more to provide to their collective interest. Specifically, we expect that these individuals may support policies that emphasize investments in green technologies more than individual-level compensatory schemes.
Research Design

To test the theoretical predictions outlined above, we collected survey data from voting-age citizens in the United States between March and August 2019. The importance of the United States is widely acknowledged in the climate politics literature, and we choose this country to situate our analysis with other studies of climate policy and public opinion (e.g., Aldy et al 2012; Bechtel and Scheve 2013). We fielded our survey instrument on three different US samples: a) a nationally representative (“General Population”) sample, meant to capture the opinions of average Americans and set the benchmark of the analysis; b) a targeted sample of cross-pressured (“Coastal/Fossil Fuel”) communities with objective ecological vulnerability to climate change—operationalized by proximity to the coast—as well as risk of job loss due to climate policy, denoted by employment in the fossil fuel industry; c) and finally, a targeted sample of coal country (“Coal”) communities with no ecological vulnerability to climate change but high risks of job and wage losses due to climate policy.

The identification of the counties to be included respectively in the “Coastal/Fossil Fuel” and “Coal” samples was done using zip-code level measures of fossil fuel employment from the US government’s Bureau of Economic Analysis. For the “Coastal/Fossil Fuel” sample, our sampling strategy identified communities mostly in the coastal south and Pacific northwest of the country; this sample included in large part individuals residing in Louisiana, Texas and Alaska. For the “Coal” sample, the communities represented in our sample come for the most part from West Virginia, Virginia, Kentucky, Wyoming and Pennsylvania.

Our US nationally representative (“General Population”) sample was fielded in two waves via the survey firm Lucid (Coppock and McClellan 2019). Setting aside participants with particularly high response speeds, this sample includes 3,702 American adults. The “Coastal/Fossil Fuel” sample and the “Coal” sample were fielded by Qualtrics, and include 1,428 and 516 individuals each, respectively. These targeted samples were convenience samples, and yet were still difficult and expensive to collect. We maxed out the number of respondents we could get in each region.

The sampling scheme can be visualized in the below figure, where dark grey indicates counties where we had respondents from the nationally representative poll, red for the coal counties where we had respondents, and blue for the coastal fossil fuel.
In the “General Population” sample, 7% identify themselves or someone in their families as employed in the fossil fuel/coal industry; this is realistic given that the US department of energy calculated that traditional energy sectors employed approximately 6.4 million Americans in 2017. However, and as validity of the more targeted sampling, in the “Coastal/Fossil Fuel” and “Coal” samples, respectively, 30% and 65% report being employed or having a close family member employed in the fossil fuel/coal industry. Also, and in line with other research on American attitudes towards climate change (Howe et al 2015), more than two thirds of the respondents in each sample consider themselves concerned about climate change.

After collecting pre-treatment demographic indicators, as well as indicators of climate concern, climate science beliefs and knowledge, we introduced respondents to a series of climate policies aimed at curbing the use of fossil fuels like coal and oil. At its core, these policies were distributive. On the one hand, they raised the cost of fossil fuels, leading to higher energy costs for average Americans. Specifically, we varied the extent to which the policies imposed a financial cost on American households. On the other hand, the government was able to deploy the funds raised from higher energy costs toward a number of ends. In line with our theoretical framework, these included (1) compensating individuals in the coal and oil industry predicted to lose jobs as a result of the policy, (2) compensating individuals affected by the deleterious effects of climate change (such as those living in coastal areas), (3) investing in renewable energy like solar and wind, and (4) distributing funds back equally to all taxpayers in the country. We
measured respondents’ distributive allocation choices and analyzed the extent to which their allocation decisions varied according to the financial costs imposed on American households.\(^4\)

In sum, we attempted to capture whether (a) objective exposure to losses from climatic events or subjective concerns of vulnerability to climate change, as well as (b) awareness of economic uncertainty due to climate policy lead individuals to respond differently depending on their balance of exposure to one risk or another. In addition, we evaluated how exposure to different combinations of risks lead individuals to display varying degrees of sensitivity to the attributes of different policies.\(^5\)

**Results: Preferences for Different Types of Compensation Policies**

In what follows, we evaluate the expectations delineated above by considering the types of compensatory mechanisms that were favored most among the three samples in our study.

**Forms of Compensation**

Our first analysis focuses on individual preferences for the different ways in which funds raised from increased fossil fuel prices (e.g., through a carbon tax) can be targeted as compensatory mechanisms. We are interested in analyzing whether there is variation in support depending on individuals’ exposure to climate policy and climate change costs (or at least perceived climate costs). To do this we designed a survey exercise that allowed individuals to allocate funds raised from carbon taxes across four distinct categories: (1) direct transfers to individuals in fossil fuel industries, (2) infrastructural investments to help communities prevent or adapt to climate risks, (3) spending on the development of green energy sources, and finally (4) an even distribution of

\(^4\) To measure respondents’ distributive allocation choices, we asked respondents to allocate the percentage of funds raised by the government from higher energy costs across the four policy options described above.

\(^5\) To further interrogate our results in the direction of our hypotheses, we also analyzed the data through the subjective measure of self-reported climate concern, i.e., whether or not individuals in our surveys said they were concerned about the impact of climate change on the community they live in. This measure has the benefit of capturing individual-level perceptions of vulnerability that our geographic sample estimates cannot represent. However, it of course has the caveat of being filtered by many unobservables and to be potentially endogenous to other factors (e.g. ideology). We only report these results in the appendix, in relation to whether or not someone indicated they were employed in the fossil fuel sector. In line with our theory, these additional results attest that fossil-fuel employed and non-employed individuals have different preferences if the self-reported climate change concern is taken into account.
funds across all taxpayers. These categories reflect a robust set of options available to policymakers and cover the range of options that surfaced as priority policies in a pilot study.\textsuperscript{6}

The wording of the survey instrument was as follows:

\textit{To combat climate change, the use of fossil fuels like coal and oil will need to be reduced.}

\textit{To reduce coal and oil production, the United States government is considering a policy to raise the costs of fossil fuels. This policy will affect average Americans because they currently use energy that comes from fossil fuels. Continuing to use these sources of energy will lead to higher household energy costs for average Americans.}

\textit{This policy can take different forms. It can increase the costs of fossil fuels a little or a lot. With higher costs, the demand for fossil fuels will fall. The government also needs to decide how to use the money collected from the policy that raises the cost of fossil fuels. The options of how the money can be used are:}

\begin{itemize}
  \item Compensate workers in the coal and oil industries who will lose jobs due to the policy.
  \item Help individuals whose homes and properties will be harmed by climate change, such as those who live in coastal areas.
  \item Invest in forms of renewable energy like solar or wind energy.
  \item Distribute the money equally to all citizens in order to offset the higher costs that they will have to pay for energy.
\end{itemize}

Next we gave respondents three different scenarios that differed by the cost associated with the policy ($16, $64, $256). We randomized the order that respondents received each cost. In each scenario we had people state what percentage of the money raised should be spent along the different dimensions. In particular, we asked:

\textit{Please consider the scenario in which the government passes a climate policy that increases the average monthly household energy costs by [16, 64, 256].}

\textit{How would you want the money spent? (Please enter values for each option below so that all options together sum up to 100%. Each value must be greater than or equal to 0. If you do not want any money spent on an option, please enter 0.)}

\textsuperscript{6} An earlier pilot (where these choices were set up as a conjoint analysis) also included putting the money back towards “other government programs”. This choice was uniformly less popular than any of the other options. However, it is possible that in the US context if this money went to local governments this option would prove to be more popular. In sensitive tests, we explore the potential role of trust in national/state/local governments in explaining positions on the allocation of money in these programs.
Transfers to compensate workers in the coal and oil industries who will lose jobs due to the policy.

Infrastructural investments to protect individuals whose homes and properties will be harmed by climate change.

Investments in renewable energy (e.g., solar or wind energy).

Equal transfers back to all citizens.

Figure 1 refers to the findings regarding the mid ($64) energy cost level, although the results are largely similar to the equivalent estimates averaged across the three cost levels (see Appendix). We present the results broken out by the three samples, which represent the three types of communities differently exposed to the risks of climate change and climate policy. Each horizontal line represents the average percentage contribution (mean with 95% confidence interval) across each contribution category.

Figure 1: Average percentage allocation across the three differently vulnerable samples. Dots are estimates and lines are 95% confidence intervals.

Starting from the baseline “General Population” sample, we find that at the set policy costs the average American is most in favour of green investments, followed by a rebate redistribution of funds. It is worth noting that at the highest policy costs ($256), the preferred choices flip, and
average Americans prefer most of all a redistribution of the allocated funds to all taxpaying citizens (see Appendix). This is consistent with our argument that the average voter in the general population, who is relatively less vulnerable to both climate change and climate policy adjustments, is least interested in targeted forms of compensation such as fiscal transfers and adaptation infrastructure spending and most inclined to supporting compensatory options that benefit broad sections of society.

In the “Coal” sample, individuals are only exposed to the economic risks of climate policy; we conjectured that this group should mobilize for direct compensation to individuals who are at risk of losing jobs from decarbonization policies. Indeed, we find that these Americans are significantly in favor of direct transfers to people whose employment stands to be threatened by climate policies. This preference for direct fiscal transfers is evident even at the highest carbon policy costs (i.e., $256). Noteworthily, this is the only group that consistently ranks direct transfers as its most favorable compensatory policy.

By contrast, the average individual in the “Coastal/Fossil Fuel” sample has preferences that lie in between those of the other two groups. Cross-pressured communities appear to be more evenly split across the different compensatory mechanisms proposed in the survey; consequently, their allocation choices appear least polarized. This finding suggests that for cross-pressured groups the two theoretically identified dimensions of vulnerability play a neutralizing role, leading to a convergence in preferences regarding compensatory mechanisms. That said, our results do not imply that respondents in the cross-pressured group lack strong opinions about compensation or are indifferent to the set of policy choices. As Sprinz and Vaahtoranta (1994) argue, cross-pressured groups may in fact find climate change to be more of a salient issue than other groups. Irrespective of issue saliency, as our evidence indicates that cross-pressured Americans are torn in their decisions regarding which spending mechanism to prioritize.

Overall, then, the “Coal” community is the most univocally in favor of direct transfers to vulnerable workers. The average voter lies at the opposite end of the spectrum, privileging compensatory policies that can materially benefit most Americans. Cross-pressured communities lie in between these two groups.

Importantly, we also find that across all categories—even among the cross-pressed communities that are susceptible to climatic adversities—individuals favor allocations to infrastructural investments for adaptation the least. This may be because people across all groups would rather support a policy where compensation generates material gains in the short run rather than prevent material losses in the future. Nonetheless, it is worthwhile to note that

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7 Indeed, similar literature finds that, even in the most vulnerable of communities, people want private safeguards rather than public protection from climate change (Dryzek, Norgaard and Schlosberg 2011).
cross-pressured respondents allocate significantly more to infrastructure than individuals in the other two samples. This is plausibly because, in relative terms, the average cross-pressured respondent is more aware about ecological vulnerability and the need for climate change protection in the future.

**Deployment of Compensation, Sense of Community and Collective Identity**

Why do voters in coal country have systematically different preferences regarding compensatory mechanisms compared to cross-pressured groups and the general public? In the previous section, we developed and tested a set of theoretical expectations around preferences for different types of compensatory schemes using a funding allocation exercise. Although we considered transfer schemes broadly defined, we did not distinguish between the modes and aggregation of compensation. However, research has increasingly associated climate policy preferences with community feelings and other-regarding beliefs (Bliuc et al. 2015). This suggests that support for redistributive climate policy may also be entrenched in egotropic versus sociotropic perceptions assumed to influence preferences for compensation more generally (see, e.g., Rocha, Knoll and Wrinkle 2015).

In light of these claims, we turn next to a complementary set of considerations regarding qualitative aspects of the compensatory schemes. Our goal here is to explore if preferences vary as a function of the community and identity-related attachments that different climate policy-vulnerable groups may have. We anticipate that the distinct preferences regarding compensatory mechanisms documented earlier stem from variations in levels of collective identities across voters residing in coal country, cross-pressured groups, and the general public.

The overarching theoretical tradeoff that we focus on pertains to the extent to which citizens prefer compensation to protect narrowly defined groups relative to broader communities, which we conceptualize in two ways: the localities and regions within which individuals live and the identity-related groups to which individuals adhere. Political economy theories of social identity hold that individuals might prefer policy that enhances their own material welfare and/or the welfare of the broader social groups with which they identify (Akerlof and Kranton 2000, Shayo 2009, Dickson and Scheve 2006, Anderson 1983). Applying this framework to the domain of compensatory preferences, we posit that groups with varying degrees of vulnerability likely attach different weights to policies that compensate households relative to entire communities affected by climate policy and that threaten the social identities of communities linked to fossil fuels production.

This investigation helps shed light on the types of groups that are more likely to be incentivized by compensatory policies which explicitly target broader groups rather than specific households. It also helps us address questions regarding the effectiveness of compensatory policies. Given
direct transfers from the government to vulnerable workers, should those funds be targeted at impacted individuals or harmed communities? What factors motivate opinions around the mode of deployment of transfers?

**Group Identities and Preferences for Mode of Compensatory Transfers**

When confronted with distributive policies, people are often motivated by concerns that are more or less reflective of their individual situation versus the state of their community, both generally (cf. Mansfield and Mutz 2009) and specifically with respect to climate policy (Bechtel and Scheve 2014, Bernauer and Nguyen 2015, Mildenberger and Tingley 2018). Support for compensatory policy may be filtered by the relative importance that voters attach to the concentration of the gains from compensation. In other words, preferences may vary as a function of whether people perceive compensation to be more efficient if funnelled to individual households or to organizations that can distribute proceeds among communities at large. Scholars investigating transfer mechanisms in the context of the trade adjustment literature have argued that community-level transfers are potentially preferable to individually-focused transfers. This distinction matters for compensatory climate policy as well, because transfers can be structured in either more concentrated or diffused ways.

Our contention is that groups with varying degrees of vulnerability will have systematically different preferences regarding compensation formulated and deployed in more individualistic relative to more communal ways. We conjecture that groups in regions that are most vulnerable to the employment adjustments of climate policy should privilege community-level transfers the most since decarbonization policies affect the economic wellbeing of entire communities that depend on fossil fuel industries, and not just individual workers employed in these industries. This creates incentives to demand compensatory policies that target the community as a whole, since policies that help other members of the community enhance the aggregate welfare of the group and, in turn, indirectly improve the standing of individual group members.

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9 Note that regardless of group status, powerful material forces might lead individuals who are themselves directly employed in fossil fuel jobs to prefer the concentration of compensatory resources at the individual level. Consequently, we expect that, in terms of level of compensation deployment, these Americans would prefer that any government redistribution would be given to the individual directly. Our goal is to examine how the broader communities described above adjudicate between individual and community-oriented transfers, after controlling for the preferences of specific individuals employed in fossil fuel sectors.
Why should people living in climate policy vulnerable communities care about group welfare associated with compensatory transfers? These groups have historically been relatively small, culturally homogenous, geographically concentrated, occupationally specialized, and intergenerationally dependent on employment in specific fossil fuels industries (Hatch 1995). These factors plausibly help generate a sense of linked fate, such that policies that are beneficial to the group are interpreted as being beneficial for all members within the group. Therefore, our second prediction is that members of these groups will be most attentive to community identities that are related to fossil fuel industry employment, and most opposed to governmental policies that are viewed as harming community identities.

On the other end of the spectrum, broader communities such as the national electorate—that are large, socially and economically diverse, and less likely to have developed a shared historical identity tied to occupational specialization in particular industries—are not predicted to be attentive to group concerns. This should make the average voter in the general population less willing to allocate finances to community-oriented compensatory mechanisms and most supportive of finely targeted and cost effective individually-focused transfers. In a similar vein, individuals in this group are expected to be less sensitive to community identity concerns, making them less likely to associate policy support with considerations of community welfare. Correspondingly, this group should be less cognizant of national identities and more supportive of cost efficiencies when considering cross-border compensatory mechanisms.

Meanwhile, we expect “cross-pressured” individuals, i.e. people attached to the fossil fuel industry who also live in coastal areas, to have more mixed opinions about the deployment of compensatory resources to fossil fuel-dependent communities. While individuals in this group might attach weight to group-level considerations, they remain less connected—be it geographically, occupationally, culturally—with one another. Yet they are likely to have a greater sense of shared consciousness because of their vulnerability to both climate change and climate change policy than the general population. Our prediction, therefore, is that preferences in this group will fall in between the preferences of climate policy vulnerable groups and the national electorate. Specifically, we anticipate that individuals in cross-pressured regions would privilege a mix of individual and community level resource deployment, exhibit some concern for policies that stand to harm the identities of fossil fuel producing communities, and balance considerations of nationalism and cost efficiency when considering cross-border compensatory schemes.

**Results: Preferences for Modes of Compensation Deployment**

We evaluate now whether different policy-vulnerable groups develop distinct preferences regarding the mode of deployment of compensatory mechanisms, conditional on the sense of
community and identity that they have. We focus specifically on three questions we asked our respondents about the conditions of compensatory climate policy. First, we investigate how concentrated the respondents want compensation to be; are respondents more likely to support policies if compensatory schemes are designed to target individuals versus impacted communities? Second, we evaluate if and how different groups may approve halting climate policy if it threatens the cultural identities of vulnerable communities. Finally, we shift the analysis from the local level to the national level, examining if different groups have different preferences about whether the United States should pursue cheaper compensation abroad or more expensive compensation at home, focusing specifically on direct cash transfers.

*Deployment of Compensation: Households versus Communities*

We posed a number of potential variations to the policies under consideration in order to test individuals’ sensitivity to various theoretically-relevant distributive dimensions. To start, we gauged whether policy support increased or diminished if compensation was allocated toward specific individuals employed in the coal and oil industries who were slated to lose jobs as a result of the policy, as opposed to broader communities that might be affected by policy-related job losses—such as communities in coal mining regions facing the prospect of shuttered coal mines. We then separately performed a similar analysis with respect to infrastructural investments, which can in principle be provided to individual households or communities affected by environmental uncertainty or natural disasters.

For each compensatory instrument, we asked respondents if they would prefer the government to either “provide funding only to the individuals affected by” climate policy/events, or “provide funding to entire communities” where such individuals reside. Respondents were forced to choose only one of the two levels of compensation deployment.

Figure 2 reports the regression results from a linear model where the dependent variable is choosing to fund only affected individuals (instead of entire communities) with respect to direct transfers. Model 1 (represented by the squares) presents a specification where the central variables are the dummies of the samples, and the reference category is the General Population sample. This model includes a number of standard respondent-level control variables. In Model 2 (represented by the triangles), we also add a measure of political ideology, which is measured as a response to the question “How would you consider yourself on a scale from very conservative to very liberal?” (for our purposes, we transform this into a 3-level categorical variable, where the reference category is “Liberal”). In Model 3 (represented by the circles) we additionally introduce an individual-level measure of fossil fuel employment, which is captured by the question, “Are you or a member of your close family employed in the fossil fuel sector?” Literature suggests that this indicator has significant explanatory power in the realm of climate policy support (Bechtel, Genovese and Scheve 2019); we wish to investigate whether different
climate vulnerable groups evidence support for community level compensatory deployments after controlling for individual-level employment.

![Figure 2: Effects of vulnerability (by sample) and employment on preferences for “direct transfers” going to individuals instead of community organizations. Linear regression coefficients with 95% confidence](image-url)
interval. Reference groups are “General Population”, “Sex: Female”, “Education: Low”, “Ideology: Liberal”, and “No Fossil Fuel Employment”.

In terms of group differences, in Model 1 we find that individuals in the “Coal” sample are more distinctively in favor of providing funding to community organizations rather than individuals compared to the “Coastal Fossil Fuel” sample, which is instead indistinguishable from the General Population. In Model 2 we find marginal evidence that after controlling for respondents’ ideology, the Coal sample is more in favor of providing funding to communities compared to respondents in the General Population, who are overall split (54% in favor of community provisions). This effect is estimated at the 90% confidence level, and only becomes statistically significant at more conventional levels if we introduce in the model the individual measure of fossil fuel employment. In Model 3 we find that this variable is positive and highly significant. Being affiliated with the fossil fuel sector increases the preference for providing funds to individuals directly, in line with the logic that directly affected workers want to ensure that compensation is given to them privately. Importantly, however, after controlling for individuals’ fossil fuel employment status, the negative coefficient on the “Coal” sample dummy expands in magnitude and becomes highly statistically significant. In other words, while individuals employed in polluting sectors prefer direct transfers to their households, respondents from geographic areas that depend on fossil fuel producing sectors evidence strong support for community-oriented compensatory mechanisms. These results are corroborated by models in which we interact the individual-level fossil fuel employment variable and sample dummies.10

The main finding here sheds light on the sense of community among coal country voters, and the importance that social coalitions in these regions attach to coal jobs as evidence of community fabric and life. Overall, the result is also in line with evidence indicating the diffused consequences of economic retrenchment in specific industries—a finding that has emerged in research of trade attitudes but that remains unexplored in studies of climate policy opinions.

To further interrogate this results, we analyze responses to the question regarding infrastructural investments. We report these findings in the same fashion as Figure 3. “Coastal Fossil Fuel” subjects—those who face high ecological vulnerability and high economic risk—prefer that the funds for adaptation infrastructure is provided to community organizations. This is in line with our argument that cross-pressured communities are more inclined to think about their collective security needs than the average voter. Interestingly, “Coal” subjects are also more inclined to see funding being given to the community organizations—in fact, even more so than the “Coastal

10 Through these interaction models, we find that while subjects not affiliated with fossil fuels have a stronger preference for community transfers than fossil fuel employed subjects, these preferences are still distinct from the individuals in the other samples, and especially fossil fuel employees in the “General Population” (who consistently want individuals to receive the transfers).
Fossil Fuel” respondents compared to the General Population; these results expand in magnitude and are precisely estimated when we control for respondents’ ideology or their employment in the fossil fuels sector. This pattern is striking. Coal country voters face lower degrees of objective ecological vulnerability; our findings from Figure 1 indicate that these voters attach less importance to adaptation projects requiring infrastructural investments. Nevertheless, this sample is strikingly more mobilized in its preferences for community (vis-a-vis individual) empowerment and enhancement.

**Figure 3:** Effects of vulnerability (by sample) and employment on preferences for “infrastructural investments” going to individuals instead of community organizations. Linear regression coefficients with 95% confidence interval. Reference groups are “General Population”, “Sex: Female”, “Education: Low”, “Ideology: Liberal”, and “No Fossil Fuel Employment”.

*Halting Policy that Threatens Community Identity*

We also probed the extent to which policy support varied when the policies in question affected non-material, identity-related factors associated with communities tied to occupations such as coal mining. Protecting the identity of coal communities has been a topic of considerable
political debate in the United States in recent years, surfacing repeatedly during the 2016 presidential campaign. To measure the importance respondents attach to the identity (and therefore survival) of these population groups, we asked:

Some people say that the government should not pass policies that harm jobs in industries like the coal industry because such policies will threaten the identities of coal workers and their surrounding communities, which are closely tied to coal mining. Do you agree? [Scale from (1) strongly disagree to (4) strongly agree]

Figure 4 reports the results of linear specifications set up in the same fashion as the previous models. Consistent with the aforementioned findings, “Coal” subjects are most strongly in favor of halting climate policies that could harm their communities than any other group. “Coastal Fossil Fuel” subjects are also generally inclined to support the governments halting such policies, but this opinion is not significantly different from the “General Population” estimate if we control for political ideology, which appears to be a major determinant of this response. As per the previous findings, an individuals’ self- or family employment in the fossil fuel sector is a strong predictor of preferences for the government to halt policies that threaten identities. In fact, this variable removes a lot of power from the sample dummies -- although the coal group is still considerably more in favor to stop policies that threaten coal communities (at least at the 90% confidence level). Interaction models provide essentially the same result.\footnote{We also probed respondents if they wanted to preserve the identities of groups (e.g. native communities) closely tied to climate vulnerable ecologies, and obtained similar results.}

11
Figure 4: Effects of vulnerability (by sample) and employment on blocking policy that threatens coal identity. Linear regression coefficients with 95% confidence interval. Reference groups as previous graphs.

These results corroborate the larger finding that Americans residing in areas exposed mainly to the costs of climate policy are more vocal about their willingness to protect their communities than Americans residing in areas experiencing both policy and environmental vulnerability, and the average American voter. Community-related questions ultimately seem to generate more distinct pro-compensation positions among people who only have one distinct source of pressure. This of course does not imply that community has no salience for the cross-pressured. Additional analyses in the Appendix show, for example, that non-fossil fuel employed, climate change-concerned respondents across all the three samples are consistently against blocking climate policy on the premise it may threaten the identity of coal communities. Still, community belonging generates most support in coal states.

Conclusion
Effective greenhouse gas emissions abatement and successful decarbonization is poised to impact the lives of many individuals and many communities. Just as in other policy arenas, such as trade policy, where there is a purported net welfare gain that accompanies concentrated losses, acting on climate change requires understanding the salience of policy preferences and overcoming the resistance of certain localized “losers” of climate policy. Against this background, we explored preferences over climate-related compensation in relevant vulnerable communities within the United States. Our study is one of the first to seriously engage with the design of decarbonization policies that must confront distributional political realities.

The findings highlighted in this paper indicate the distinctive opinions of individuals who are exposed to independent or concurrent sets of ecological and employment vulnerabilities. On the one hand, vulnerability to employment losses arising from climate change policy moves support for individual redress and payment. Individuals residing in coal country are consistently most in favor of policies that transfer funds raised from carbon taxes back to those who stand to lose jobs from lower emissions. On the other hand, individuals in the general population display the least support for job related transfers; instead, the average voter is much more in favor of investments in green technologies at lower levels of taxation and equal redistribution to all citizens at higher levels of taxation. Meanwhile, cross-pressured individuals—those living in coastal fossil fuel producing regions that are vulnerable to hurricanes and storms—register preferences that fall in between, expressing support for transfers, green investments and equal redistribution. They nevertheless had the highest level of support for adaptation spending.

Our findings are noteworthy since turning policy opponents into supporters is one of the biggest challenges facing successful economic reforms, of which effective climate change regulations are a foremost example. Our research indicates the extent to which mobilizing supporters will be challenging, given that different groups of people will prefer different levels, forms, and methods of compensation. On the one hand, the most cohesive and potentially antagonistic group are the communities that are currently only confronted by the wage and employment consequences of climate policy. Our results indicate that a government has much to do to appease these voters. On the other hand, the interrelation of ecological climate costs and employment costs also creates a distinct group of citizens, who desire a fair mix of allocations for different types of compensation. If climate change-induced events are to increase in intensity and frequency, more communities will probably become “cross-pressured”, therefore pushing the policy agenda to more mixed transfers. Finally, our data shows that compensation can in fact strengthen the public foundations for ambitious climate policy if provided in targeted and credible ways. Consequently, this paper provides some validity to recent compensatory moves of managing losers and quieting climate policy opposition around the world.12 Last but not least, it pushes

12 Germany currently constitutes a prominent example of national compensation politics in phasing out coal. See Bundesregierung (2018) at:
forward the case of further exploring the implications of compensation in new areas of political economy research beyond the climate.

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Appendix

Section 1: Preferences over Different Types of Compensation Policies

In the main text we presented the results of the compensation choices based on a policy that would raise household energy cost by $64. In Figure A.1 we additionally present the results for the lower and upper cost levels presented to the participants, at respectively $16 and $256.

![Figure A.1](image)

*Figure A.1:* Average percentage allocation across the three differently vulnerable samples for each of the three cost levels subjects were presented with. Dots are estimates and lines are 95% confidence intervals.
We additionally explore the allocations to the compensatory instruments by splitting the sample in other ways. While in the main text we exploit aggregate (geography, i.e. sample-related) measures of vulnerability, in additional analyses we operationalize other forms of individual (self-reported) vulnerability concerns. Subjective measures are particularly useful in settings where “solution aversion” (Campbell and Kay 2014) serves as a primary motivator for policy inaction on climate change; these include settings where the environmental impacts of climate change are predicted to be less severe than warranted and where the socioeconomic impacts of implementing climate change regulation are anticipated to be more acute and binding than warranted.

To capture the more subjective measure of self-reported climate concern, early on in the survey we asked respondents whether or not they said they were concerned about the impact of climate change on the community they live in. We then combine this response with whether or not someone indicated they were employed in the fossil fuel sector.

Figure A.2 reports the results for each of the three samples of this study. To ease the visualization of the findings, we collapsed to the mean the average allocations the respondents provided for each of the three policy cost levels. The results for each cost level for each sample are further reported in Figure A.3 through Figure A.5, as well as are the results for each cost level for the pooled dataset (Figure A.6). Overall, we find that individuals indicating employment in the fossil fuel industry on average put the most money into direct transfers. This is higher for those saying they are not concerned about the effects of climate change on their community, and most strikingly for the Coal communities. Also noteworthy is the finding that, across all samples, individuals both expressing concern with climate change and registering employment in the fossil fuel industry wanted more money spent on infrastructure for adaptation as well as spending on green technologies, compared to their peers who were not concerned.

Among those not exposed to the policy costs of fossil fuel regulations, those that were concerned about climate impacts supported investment in green energy the highest. Conversely, individuals not exposed to the policy costs of fossil fuel regulations and not concerned about climate impacts, preferred the redistributive policy option the most. This is with the exception of the Coal subjects, who -- even if they are not personally involved in the fossil fuel industry and not concerned -- want as much redistribution allocation as direct transfers. This finding buttresses the singularity of subjects in job-threatened communities and the mixed position of cross-pressured individuals.

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13 We analyze discrepancies between subjective and objective measures of climate concern in related work; see Gaikwad, Genovese, and Tingley, 2019, “Climate Concern Perception and Realities.”
Figure A.2: Average percentage allocation across categories broken out by respondent’s climate concern and self-reported fossil fuel employment status, per different sample. The estimates refer to the average of the three policy cost levels presented to each subject (i.e. the average across $16, $64 and $256); these are substantively equivalent if we observe only the $64 level.
Figure A.3: Average percentage allocation across categories broken out by respondent’s climate concern and self-reported fossil fuel employment status: Coal sample. Results by each policy cost level presented to the subjects.
Figure A.4: Average percentage allocation across categories broken out by respondent’s climate concern and self-reported fossil fuel employment status: Coastal/Fossil Fuel sample. Results by each policy cost level presented to the subject.
Figure A.5: Average percentage allocation across categories broken out by respondent’s climate concern and self-reported fossil fuel employment status: General Population sample. Results by each policy cost level presented to the subject.
Figure A.6: Average percentage allocation across categories broken out by respondent’s climate concern and self-reported fossil fuel employment status: pooled data (all samples).
Section 2: Deployment of Compensation, Sense of Community and Collective Identity

Here we present additional findings based on the questions regarding community and identity.

We start first with the questions targeting the level of deployment of compensation with respect to “direct transfers” and “infrastructure investments”. In Figure A.7 we present the results for the full specification model to which we add four dummy variables of trust: trust in the national (federal) government; trust in the state government; trust in municipal government, and trust in community leaders. While we find that the first two levels of trust partly explain choices for individual provision of compensation (in opposite ways), our central results remain largely unvaried.

Figure A.7: Effects of ecological vulnerability (by sample) and employment on preferences for “direct transfers” and “infrastructural investments” going to individuals instead of community organizations, controlling for trust in government. Linear regression coefficients with 95% confidence interval.
As reported in the main text, we also explore the interaction of the sample dummies with the variable capturing individual-level fossil fuel employment. Figure A.8 reports the results. We find that this interaction is statistically significant for both samples, and that fossil fuel-employed individuals in Coal and Coastal Fossil Fuel areas are all the more likely to want individual-level compensation. This interaction is particularly relevant to the Coastal Fossil Fuel respondents, in line with our conjecture that collective sentiments are more salient in Coal communities.

Figure A.8: Interaction effects of ecological vulnerability (by sample) and employment on preferences on “direct transfers” and “infrastructural investments” going to individuals instead of community organizations. Linear regression coefficients with 95% confidence interval.
We also analyze the individual versus community level of compensation deployment using the subjective measure of vulnerability, i.e. self-reported concern with climate change. Specifically, we modelled the responses as a linear regression where the theoretically relevant predictors are dummies reflecting whether respondents are concerned with climate change and/or employed in the fossil fuel industry. The results in Figure A.9 represent the change in probabilities where the reference category is respondents who are neither concerned with climate change nor employed in the fossil fuel industry. We find that the cross-pressured respondents who are both concerned and employed in the fossil fuel sector prefer that the government provides individuals (instead of community organizations) with resources for compensation for both direct transfers and infrastructure. Rather, the subjects who have clear economic risk from climate policy but no subjective ecological concern are very significantly in favor of individuals receiving funding for transfers, but not for infrastructure investments. Given that people not concerned by climate change tend to be more in US areas less affected by natural disasters (e.g. coal country), this analysis strengthens our sample-based findings. More generally, we take this as supporting evidence that fossil fuel employment significantly shapes opinions for deployment of compensation funds, but is moderated by both objective or subjective feelings of vulnerability.

Figure A.9: Effects of subjective climate concerns and employment on preferences for “direct transfers” and “infrastructural investments”. Linear regression coefficients with 95% confidence interval.
We also run additional regression analyses with respect to the question regarding the protection of vulnerable communities, and specifically coal miners. Figure A.10 reports the results for a fully specified model that additionally controls for trust levels in different types of governmental institutions, and an interaction model where we multiply the sample dummies to the individual-level fossil fuel employment variable. The results corroborate the findings discussed in the main text. As expected, Coal Country individuals are more likely than cross-pressured and general public respondents to want to halt policies that may threaten the identity of coal communities, even if we account for trust in institutions. Also, the interaction indicates that individual-level employment among Coal respondents triggers no statistically significant support with respect to this question (while it does for the Coastal Fossil Fuel respondents).

**Figure A.10:** Effects of vulnerability (by sample) and employment on blocking policy that threatens coal identity: additional specification. The red dots refer to estimates of a model that controls for respondent’s level of trust in a number of governmental institutions. The blue triangles refer to estimates of a model that interacts the sample dummies with the individual-level fossil fuel employment. Linear regression coefficients with 95% confidence interval.
We also explore our data based on the self-reported measure of climate concern (which we substitute to the sample-specific measures of vulnerability). Figure A.11 reports the results for each sample. Again, the reference category here is respondents who are neither concerned with climate change nor employed in the fossil fuel industry. The respondents who are concerned with climate change and employed in the fossil fuel industry confirm the patterns unveiled by our previous analyses, in that this group has mixed positions on the issue, especially if we look at the Coal and Coastal Fossil Fuel groups. The respondents who are concerned with climate change but not employed in the fossil fuel industry are significantly less inclined to halt community-threatening climate policy. Vice versa, respondents who are not concerned but employed in the fossil fuel industry are more inclined to oppose climate policy that threaten coal communities (these results appear stronger for the “Coastal Fossil Fuel” group).

Figure A.11: Effects of subjective climate concerns and employment on support for a policy that protects coal community identity, by sample. Linear regression coefficients with 95% confidence interval.